



# Pacific bluefin tuna science and management

## **Frequently Asked Questions** **April 2016**

### **Pacific Bluefin Population Status Questions & Answers**

#### **What is the status of the Pacific bluefin tuna population?**

The 2016 stock assessment indicates that the 2014 spawning biomass of Pacific bluefin tuna is at historic lows (about 2.6% compared to the biomass if no fishing had taken place, or "unfished biomass"). This is an increase from the 2012 spawning biomass of 2.0% estimated in the same assessment. The amount and rate of bluefin harvested each year continues to be high. As a result, the population is considered to be overfished and subject to overfishing. An international rebuilding effort is underway to reduce fishing impacts, bring the stock back to healthy levels, and ensure the sustainability of future harvests. These proposed regulatory measures are part of the rebuilding effort. The DRAFT executive summary for the 2016 stock assessment, which will be reviewed and finalized in July is available here:

<http://www.iattc.org/Meetings/Meetings2016/SAC7/7thMeetingScientificAdvisoryCommitteeENG.htm>.

#### **The assessment conducted in 2014 estimated the 2012 spawning biomass at 4.2% of the unfished biomass. This was different from 2012 estimate (2.1%) in the current (2016) assessment. Has the population declined? Why do the estimates of spawning biomass for the same year differ between assessments?**

Although the spawning biomass for 2012 estimated in the 2016 assessment (2.1%) is lower than that from the 2014 assessment (4.2%) this is because the model used in the 2016 assessment was improved. Based on results from the 2016 assessment, spawning biomass increased from 2.0% in 2012 to 2.6% in 2014. Despite this increase, the stock is still considered to be overfished and experiencing overfishing.

#### **Do the results of the assessment indicate that the management measures adopted by the Inter-American Tropical Tuna Commission, Western and Central Pacific Fisheries Commission (WCPFC), and the Pacific Fishery Management Council in 2014 and put in place for 2015 and 2016 are working?**

The results of the 2016 assessment are based on data through 2014, and therefore, do not represent the impact of the more restrictive management measures adopted in 2014 and implemented for 2015 and 2016 (i.e., reductions to catch and bag limits and effort limits). Data from 2015 and 2016 will be considered in the 2018 stock assessment for Pacific bluefin tuna. Nonetheless, the assessment included projections based on the status of the stock in 2014. Of these projections, scenario 2 represents the management measures in place now, and how we might expect them to affect the population. Overall, they indicate that the management measures implemented in 2015 and 2016 are likely to achieve the WCPFC interim target for rebuilding the stock, under average recruitment scenarios. Experts have not determined the amount that would indicate the population is recovered.

#### **If there are so few bluefin, why are California fishermen seeing so many?**

Of the tunas, Pacific bluefin has the broadest geographic range, spanning large expanses of the Pacific Ocean. They spawn in the Western Pacific Ocean (WPO) between central Japan and the northern Philippines, and in the Sea of Japan from April through August. A portion of these fish migrates to waters off the U.S. West Coast and Mexico. The exact proportion that migrates is unknown, but it is possible that in the last few years a larger proportion of the juveniles have migrated from the spawning grounds to the West Coast and Mexico. The migration patterns of Pacific bluefin tuna are influenced by oceanographic conditions and vary among years. Increases in the number of fish observed locally may also be a result of changes in the proportion of fish migrating to the eastern Pacific, and/or conditions along the west coast that may have shifted schools further north.

### **Pacific Bluefin Stock Assessment Questions & Answers**

#### **How is the status of the bluefin tuna population determined?**

NOAA Fisheries scientists work together with international scientists through the International Scientific Committee for Tuna and Tuna-Like Species in the North Pacific Ocean (ISC)\* to review and analyze the best available data to assess the status of the population. Using data from commercial and recreational fisheries across the Pacific as well as on-the-water scientific observations, stock assessments describe the past and current status of the population. Additionally, the stock assessment process also includes predictions about the performance of current and future management measures in rebuilding the stock.

\*Established in 1995, the goals of the ISC include: (1) to enhance scientific research and cooperation for conservation and rational utilization of the species of tuna and tuna-like fishes that inhabit the North Pacific Ocean; and (2) to establish the scientific groundwork for the conservation and rational utilization of these species in this region. ISC's voting member nations are Canada, Taiwan, Japan, Republic of Korea, Mexico, the People's Republic of China and the U.S.A.

### **Are data from Eastern Pacific Ocean fisheries used in the stock assessment?**

Data from Eastern Pacific Ocean (EPO) fisheries are used in the North Pacific bluefin tuna stock assessment. Size composition and catch data from the EPO are used and these are important data. The stock assessment assumes (and science corroborates) that there is one stock or population of Pacific bluefin tuna in the entire North Pacific Ocean and all catch from all fisheries taking Pacific bluefin are included in the modeling process. Size-composition data from EPO commercial fleets provide the assessment model with information on the age classes that comprise the catch. In addition, a catch-per-unit-effort (CPUE) estimate from the EPO is also included to the extent it can be, given that migration data needed to fully estimate CPUE are not included in the model.

### **Why are bluefin data from spotter planes not used in the assessment? They are seeing many bluefin in the EPO!**

Two things affect the amount of Pacific bluefin available in the EPO: Migration to the EPO from the WPO and retention within the EPO. Pacific bluefin have a very broad geographic range, spanning large expanses of the Pacific Ocean. They spawn in the western Pacific Ocean between central Japan and the northern Philippines, and in the Sea of Japan from April through August. A portion of these fish migrate to waters off the U.S. West Coast and Mexico and that proportion is influenced by varying ocean conditions. Because the fraction of the total population migrating to the EPO varies and is unknown, we can't use what the spotter pilots see as an accurate depiction of the whole population. Using it would require a large-scale full-ocean migration study, which would be extremely costly. We are confident the trends that the ISC is seeing are accurate.

### **How reliable are the data being reported from Japan, Taiwan, China, and Korea? Do they have the same level of enforcement and compliance as we do?**

Member countries that signed agreements for two international commissions, Western and Central Pacific Fisheries Commission (WCPFC) and Inter-American Tropical Tuna Commission (IATTC), have agreed to provide data from their fisheries and biological studies. Staff and Members, including the U.S., of these organizations review data submissions. The data provided by other nations appears to be internally consistent as well as with data from other nations.

In addition, Members of both the IATTC and WCPFC signed an agreement that says they will be more cautious when information is uncertain, unreliable or inadequate. The absence of adequate scientific information shall not be used as a reason for postponing or failing to take conservation and management measures. This is referred to as the **precautionary approach**.

### **How often is the Pacific bluefin tuna assessed?**

The ISC aims to fully assess fish populations once every three years and update assessments periodically. They assessed the status the Pacific bluefin tuna population in 2012, 2014 and 2016.

### **Pacific bluefin management questions and answers**

#### **What are other countries doing to reduce their impact on a relative basis?**

All members of the Western and Central Pacific Fisheries Commission (WCPFC) and Inter-American Tropical Tuna Commission (IATTC) are faced with catch reductions. The WCPFC's conservation and management measure 2015-04 stipulates that:

- All members must reduce their fishing effort on Pacific bluefin to below the average amount they fished in 2002 to 2004 in the WPO.
- All members must reduce their catch of Pacific bluefin smaller than 30 kg (66 lbs) by 50% of the average amount fished in 2002 to 2004 in the WPO.
- WCPFC will develop an emergency rule in 2016 which will stipulate specific rules for when drastic drops in recruitment are detected. (This is the only new language in the 2015 CMM compared to the 2014 CMM).

The IATTC's resolution C-14-06 stipulates that total commercial catches by all Members cannot exceed 6,600 mt in 2015 and 2016 combined in the EPO.

#### **Will these current management measures help the stock?**

Projections from the 2016 stock assessment suggest that the spawning stock is 56% likely to recover to the interim target spawning biomass of 43,000 mt by 2024 even if recruitment continues to be low *if* the WCPFC CMM 2015-04 and IATTC resolution C-14-06 are fully implemented. This interim target spawning biomass is significantly higher than the 2014 spawning biomass (estimated in the 2016 assessment).

#### **If purse-seine vessels are the driving force behind the declines, then why are they still allowed to catch very young bluefin?**

Purse-seine vessels from members of the WCPFC and IATTC, including the U.S., Mexico, and Japan, are faced with catch reductions, according to the international regulations agreed upon by the respective international organizations (see above).

#### **If the Pacific bluefin tuna population shows signs of rebounding will fisheries management respond and increase the limits again?**

An international rebuilding effort is underway to reduce fishing impacts, bring the stock back to healthy levels, and ensure the sustainability of future harvests. Management will adapt with the best available science. Because Pacific bluefin tuna are so productive, we hope that with international cooperation the population will recover and allow for fishing limits to be revisited.

**Why are recreational fishermen subject to an 80% reduction in our allowable bag limit when our overall impact is small compared to the major commercial fisheries harvesting most of the Pacific bluefin tuna?**

The Pacific bluefin tuna biomass is very low and there are few bluefin tuna of a spawning age/size. Bluefin migrate to the EPO from their spawning grounds off Japan as juveniles. Any bluefin that leave the EPO to return to the WPO to spawn is one more fish that contributes to the biomass. As adult females can spawn 5 million eggs in one year (up to 25 million for large ones), allowing any female to reach maturity and spawn could contribute to the population recovery.

It is expected that these measures will result in a 30% reduction in recreational catch of PBF from the U.S., which is consistent with IATTC scientific staff recommendations for 25-40% reductions in Pacific bluefin tuna catch. Similarly, the catch limits adopted in 2014 represent a 40% reduction.

In addition, U.S. catches and contribution to the population decline were significantly higher in the past. While our catch may have been minor in recent years, in the 1960s and 1970s U.S. catch reached up to 15,000 mt in a year, or up to 50% of the catch. Summary catch data are on the table below. The U.S. contributed to the present status of the stock and it is our responsibility to contribute to its recovery.

<b>Nation (Commercial)</b>	<b>Landings Range (mt) 1952-1999</b>	<b>Landings Range (mt) 2000-2014</b>	<b>Landings (mt) in 2013</b>	<b>Landings (mt) in 2014</b>
Taiwan	0 - 3089	214 - 2,782	335	483
Japan	7134 - 34,029	6,093- 24,572	6,411	9,605
Korea	0 - 1054	604 - 2,601	604	1,311
Mexico	0 - 3700	863 - 9,927	3,154	4,862
United States	508 - 15,482	56 - 1,073	820	804
<b>All Nation Commercial Total</b>	<b>8,627 - 40,144</b>	<b>11,325 - 33,964</b>	<b>11,325</b>	<b>17,065</b>
<b>U.S. Recreational Total</b>	<b>1 - 422</b>	<b>12 - 809</b>	<b>809</b>	<b>398</b>

Summary catch data from 1952-2014. Data are from the ISC15 Plenary Report.